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10/519,098	01/20/2006	Carinne Fleury	263122US0PCT	9512
22850 7590 11/09/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER NELSON, MICHAEL B				
ART UNIT		PAPER NUMBER		
1798				
NOTIFICATION DATE		DELIVERY MODE		
11/09/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/519,098

**Applicant(s)**

FLEURY ET AL.

**Examiner**

MICHAEL B. NELSON

**Art Unit**

1798

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4-9, 13, 15 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9, 13, 15, 19-21, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date \_\_\_\_\_
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/12/10 has been entered. Claims 1, 2, 4-9, 13, 15, 19-21, 23, 24 are currently under examination on the merits.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4-9, 13, 15, 19-21 and 23 rejected under 35 U.S.C. 102(b) as being anticipated by Joret et al. (FR 2,800,998), see English language equivalent U.S. 6,924,037.

Regarding claim 1, Joret et al. discloses a transparent substrate, comprising on at least one of its faces an antireflection coating, particularly at normal incidence made of a multilayer (A) of thin layers made of dielectrical material with alternatively high and low refractive indexes, characterized in that the multilayer comprises, in succession: a high-index first layer (1), with a refractive index  $n_1$  of between 1.8 and 2.2 and geometrical thickness of between 5 and 50 nm, a low-index second layer (2), with a refractive index  $n_2$  of between 1.35 and 1.65 and a geometrical thickness  $e_2$  of between 5 and 50 nm, a high-index third layer (3) with a refractive

index  $n_3$  of between 1.8 and 2.2 and a geometrical thickness  $e_3$ , a low-index depth fourth layer (4) with a refractive index  $n_4$  and a geometrical thickness  $e_4$ ;

(See Abstract and claim 1 of Joret et al. All the limitations are read upon practically verbatim with only the third and fourth layer thickness ranges not exactly matching. The disclosed third layer thickness (70-120 nm) substantially covers the claimed range with both endpoints lying within the claimed range of 40-150 nm. The disclosed fourth layer thickness (at least 80 nm) substantially covers the claimed range with the lower endpoint (80 nm) lying within the claimed range of 40-120 nm. Joret et al. discloses that the materials for the first and third layers can be more than one oxide (i.e. a mixed oxide) selected from a group containing ZnO and SnO, (C4, L32-38). Joret et al. also discloses that the layers of the stack can be made to be slightly conductive, for example by doping, in order to impart antistatic functionality (C8, L15-25). Regarding the reflectance limitation: See Examples 1-13, C13, L5-20, the reflectance of example 4 is 3% less than that of the uncoated substrate, (example 1, C9, L35-45) at normal incidence. )

Regarding claims 2, 4-7, Joret et al. discloses all of the limitations as set forth above. Additionally the reference discloses a transparent substrate which reads on the limitations of claims 2, 4-7

(See C3, L65-C4, L15, the disclosed ranges exactly match the ranges of instant claims 2, 4 and 5. The lower endpoint of the most preferred disclosed thickness of the third layer (at least 75 nm), lies within the claimed range of instant claim 6. The

endpoints of the most preferred thickness of the fourth layer (80-110 nm), lie within the claimed range of instant claim 7. See Abstract, the disclosed range for the second and third layer refractive indexes exactly matches the limitations of instant claims 3.)

Regarding claims 8 and 9, Joret et al. discloses all of the limitations as set forth above. Additionally the reference discloses a transparent substrate wherein

- wherein the high-index first layer (1) and the low-index second layer (2) are replaced by an intermediate-index single layer (5)  $n_s$  of between 1.65 and 1.80 and preferably having an optical thickness  $e_{opt}$  of between 50 and 140 nm, preferably between 85 and 120 nm.
- wherein the intermediate-index layer (5) is based on a mixture of, on the one hand, silicon oxide and, on the other hand, at least one metal oxide chosen from tin oxide, zinc oxide, titanium oxide or is based on a silicon oxynitride or oxycarbide and/or aluminum oxynitride.

(See C4, L15-35. The first and second layers are disclosed as being combined into an intermediate layer having exactly the same thickness and refractive index as the claimed ranges. The same materials for the intermediate layer are also disclosed.)

Regarding claim 13, Joret et al. discloses all of the limitations as set forth above. Additionally the reference discloses a transparent substrate which reads on the limitation of claim 13.

(See C4, L30-40, the materials for the first and third layers are, inter alia, silicon nitrides, as in instant claim 10. See C4, L60-C5, L5, the first or the third layers are disclosed as being made of  $\text{SnO}_2/\text{Si}_3\text{N}_4$  or  $\text{Si}_3\text{N}_4/\text{SnO}_2$  bilayers. See C5, L15-30, the

second and fourth layers are disclosed as being made of, inter alia, silicon oxide. See C5, L5-15, the substrate is disclosed as being made of, inter alia, clear glass.)

Regarding claim 15 Joret et al. discloses all of the limitations as set forth above. Additionally the reference discloses a transparent substrate which reads on the limitations of claim 15.

(See Examples 1-13, C13, L5-20, the reflectance of example 4 is 3% less than that of the uncoated substrate, (example 1, C9, L35-45) and the b\* value is negative and in claim 15. See C4, L30-40, the materials for the first and third layers are, inter alia, silicon nitrides, which is disclosed as giving the invention heat treatment abilities (C15, L35-40). See C13, L20-30, the disclosed TABER test results of the examples are less than 3%, as in claims 16 and 17.)

Regarding claims 19-21 and 23, Joret et al. discloses all of the limitations as set forth above. Additionally the reference discloses a transparent substrate which reads on claims 19-21 and 23.

(See C6, L40-55, a multiple glazed unit is disclosed with two glass substrates with a thermoplastic PVB layer in between and with the disclosed four layered antireflective structure (A) on one side and on the other side a different antireflective structure (B), which is disclosed as meeting the limitations of the first embodiment of the second antireflective coating from instant claim 20 (i.e. single low-index layer of silicon oxide

with the instant claimed refractive index ranges deposited by CVD, C7, L35-C8, L10).

Also see C5, L25-35, a disclosed use of the substrate is for a shop counter.)

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joret et al. (FR 2,800,998), see English language equivalent U.S. 6,924,037, as applied to claim 1 above, and further in view of Hashimoto (U.S. 5,777,779) in view of Nakatani et al. (U.S. 5,577,021).
8. Regarding claim 24, Joret discloses all of the limitations as set forth above, including that the high refractive index layers be a mixed oxide of zinc and tin (C4, L30-40). The reference does not specifically mention the method of depositing the mixture of oxides but Hashimoto discloses that for a layer that is meant to have a mixture of oxides one known technique is co-sputtering from two targets in the same atmosphere (C3, L35-55, and C6, L60-C7, L10, describing that the mixture layer is a mix of two metal oxides just like the mixture of the two metal oxides mentioned in Joret at C4). Hence it would have been obvious to have used the cosputtering technique of Hashimoto because it produced a mixed oxide, as is called for in Joret. Hashimoto does not disclose that the cosputtering of the two targets results in the general structure instantly claimed; however, Nakatani discloses that as a result of cosputtering from two targets in the same atmosphere, a mixed oxide with the instantly claimed formula representation is produced (C6, L55-65). Hence one having ordinary skill would expect the cosputtering technique of Hashimoto applied to a mixture of zinc and tin as called for in Joret would produce a layer that would be represented by the instantly claimed formula, as indicated by Nakatani.

***Response to Arguments***

9. Applicant's arguments of 05/12/10 are considered moot in light of the new grounds of rejection which were necessitated by applicant's amendments. Arguments which are still deemed valid are addressed below.



10. Regarding applicant's argument that "mixed oxide" has some special meaning, the arguments are not persuasive. Applicant argues that the mention of the formula of claim 24 indicates a special meaning to the term however, the mentioning of the formula does not limit the definition of the term mixed oxide since it is just one example. The formula as claimed may be a mixed oxide but so is a mixture of SnO and ZnO.

11. Applicant then argues that based on the way that Joret discusses the high and low refractive index layer it is apparent that the mixtures of oxides are fundamentally different. This is not so. The mentioning of the EP reference at C5, L5-15 of Joret is one example of the technique used to create a "mixed silicon aluminum oxide" and does not limit those words to any particular method of mixing oxides. Applicant seems to be arguing that the phraseology "mixed METAL METAL oxide" is different from "a mixture of METAL oxide and METAL oxide" (with the former signifying the type of mixture represented by the formula of claim 24) based on their use in different portions of the Joret reference. However the cited portion at C5 of Joret further references the mixed oxide as having "respective portions of two oxides." If applicant's interpretation were true the reference would be "respective portions of two metals" since applicant is alleging that "mixed silicon aluminum oxide" phraseology represents two metals forming one oxide. This conflicts with the reference in Joret to the mixture being two oxides which makes the mixture appear the same (i.e. a general mixture) as the mixture of two oxides made at C4, L30-40. Hence Joret is calling for mixed oxides in general and the EP reference cited at C5 is likely cited because it discloses an example of forming a mixed oxide of silicon and aluminum, not because the phrase "mixed METAL METAL oxide" was meant to signify any specific molecular structure.

12. Applicant then argues alloy target sputtering produces the instantly claimed formula.

While this may be true, the references cited show that co-sputtering will also produce the claimed formula and since co-sputtering is a known and obvious method for mixing oxides, the mixed oxide as claimed in claim 24 is read upon by the art.

13. Applicant's arguments that the CVD deposition technique is disclosed by Joret is not persuasive because, as applicant argues, Joret is silent as to the method of making the high refractive index layer. The CVD reference is, at best, one example of a technique and is not even seen as tied specifically to the high index layer.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Friday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571) 272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/  
11/02/10  
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